Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of	)	
	)	
Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service	)	MM Docket No. 87-268

COMMENTS OF LEWIS BROADCASTING CORPORATION

Lewis Broadcasting Corporation ("Lewis"), by its attorneys, hereby submits its comments in response to the Commission's Sixth Further Notice of Proposed Rule Making, released in the above-captioned proceeding on August 14, 1996.[1]

I. BACKGROUND

Lewis is the licensee of three full power television broadcast stations (WJCL, Savannah, Georgia; WLTX, Columbia, South Carolina, and WLTZ, Columbus, Georgia) and five television translator stations (W02BA, Batesburg-Leesville, SC; W05AV, Great Falls, SC; W08BS, Sumter, SC; W08BT,

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1 FCC 96-317, released August 14, 1996 ("Sixth Further Notice").

Newberry, SC: and W08BU, Orangeburg, SC) which are used to enhance the coverage area of WLTX, Columbia, South Carolina. As have all other television broadcasters, Lewis has been closely following the Commission's digital television ("DTV") proceedings, and especially the channel allotment and assignment process articulated in the Sixth Further Notice. Lewis also has been involved in the Broadcaster's Caucus process in its region in an attempt to correct what Lewis views as an especially egregious DTV channel assignment proposal in the Columbia, South Carolina market involving the Lewis station there (WLTX).

Because the proposed channel assignments in Columbia, South Carolina (both as proposed in the Sixth Further Notice and as revised by the Broadcaster's Caucus in their Comments filed concurrently herewith) will result in a significant diminution in the coverage area of WLTX, Lewis is compelled to submit these Comments in opposition to those channel assignments. Lewis concurs with the view of the Broadcaster's Caucus regarding the need for continued flexibility in the DTV channel assignment process to adjust to "real world" conditions encountered in the various markets. Lewis submits that the Commission should use such a process to address at an early date the serious inequities created by the assignment proposals of both the Commission

Broadcaster's Caucus with respect to the Columbia, South Carolina market.[2]

II. THE COMMISSION SHOULD USE THE DTV ALLOTMENT PROCESS TO ADDRESS CURRENT TELEVISION STATION MARKET IMBALANCES

As an initial matter, Lewis submits that, at least with respect to markets such as Columbia which have a single VHF station competing with multiple UHF outlets, it would "be more desirable" for the Commission "to allot DTV channels using an approach that maximizes the service areas of all DTV stations."[3] The Commission could achieve this goal through a combination of channel assignments and power and antenna height considerations. As the Commission recognizes, such an "approach would tend to equalize the coverage area of all stations within a market and reduce the current disparities among stations."[4]

In markets with one VHF station, there historically has been a significant differential between that predominant VHF

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2 Prior to filing these Comments, Lewis attempted to obtain relief through the Broadcaster's Caucus regional process. Specifically, Lewis requested that it be assigned channel 32 for WLTX, which was listed as an alternate channel in both the Commission's and the Broadcaster's Caucus tables. Lewis was advised by the Association For Maximum Television, Inc. of its view that channel 32 would not be advisable for Columbia.

3 Sixth Further Notice at ¶ 14.

4 Id.

station and its UHF competitors. In the transition to DTV, the Commission has a perfect opportunity to correct these historical imbalances rather than perpetuate them.

It is especially critical to reach competitive equilibrium in the DTV environment, as the Commission attempts to encourage broadcasters to embrace this new digital technology. Broadcasters will be motivated to construct DTV facilities if they perceive an opportunity to improve an inferior competitive position currently existing in the NTSC market. Conversely, if under-competitive NTSC television facilities are not to be improved, or will be weakened as is the case with the current proposed DTV channel assignments for WLTX, there will be a natural reluctance by the station owners to switch to DTV. Thus, from the Lewis perspective, an allotment approach designed to give all stations in the market comparable coverage to each other is to be applauded.

Lewis finds considerable merit in the Commission's earlier proposal to place all DTV channels in the UHF band. Such an outcome would be a strong encouragement to medium and small market stations to participate in this technology within an equally competitive environment.

III. THE DTV ASSIGNMENT PLANS FOR COLUMBIA, SOUTH CAROLINA WOULD WORSEN THE COMPETITIVE IMBALANCE

The DTV assignment plans for Columbia, South Carolina proposed by the Commission and the Broadcaster's Caucus would exacerbate the competitive differential in that television market. Except for WLTX, under the Commission's plan, each of the five television stations in Columbia would receive a DTV channel that is lower in frequency than its NTSC channel, and three of the five stations would receive a DTV channel of first or second adjacency from its NTSC channel. WLTX, however, which currently operates on channel 19, would receive a DTV assignment of channel 50 under the Commission's plan. The Broadcaster's Caucus plan follows all of the Commission's recommendations for Columbia, except that WLTX would be assigned DTV channel 66!

The Commission's allotment/assignment philosophy articulated in the Sixth Further Notice is one designed to permit stations, when transitioning to DTV, to "replicate" or "maintain the service areas of existing NTSC stations, thereby preserving viewer's access to off-the-air TV service and the ability of stations to reach the audience that they now serve."[5] Although both the Commission and the

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[5] Sixth Further Notice at ¶ 13. As noted above, Lewis believes the Commission's previous philosophy of equalizing DTV stations in each market has more merit, especially in markets where one or a few stations

Continued on following page

Broadcaster's Caucus maintain that their proposed channel assignments generally achieve this objective, in the Columbia market, they fall significantly short of the mark. As explained in the attached Engineering Statement of Lohnes and Culver (Exhibit E), there are two major reasons for the discrepancy in the Commission's and the Broadcaster's Caucus assumptions and the "real world" transmission practicalities in the Columbia, South Carolina market.

First, both the Commission's and the Broadcaster's Caucus computer models apparently ignore the effects of forestation on the attenuation of UHF signals, and especially those at the higher frequencies. Approximately 70% of the WLTX NTSC Grade B coverage area is heavily forested, much of it with dense pine tree growth.[6] The Engineering Statement documents study after study that has concluded that the "attenuating effect of terrain and dense foliage is much more severe on UHF frequencies than on VHF frequencies and the degree of attenuation varies with frequency."[7] With respect to WLTX, "[t]his additional attenuation at the higher frequencies (channels 50 or 66) will severely restrict the

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Continued from previous page

historically have dominated due to their superior facilities.

6 Engineering Statement at 2.

7 Id.

station's ability to provide usable signals throughout the area now served by WLTX."[8]

A second penalty imposed on WLTX by both the Commission's and the Broadcaster's Caucus plans results from the assignment of DTV channel 8 to WIS-TV, which currently operates on NTSC channel 10. In order to improve the reception of the WLTX service, Lewis has constructed a series of translator stations in various parts of its service area. Three of these translators (which operate in the significant communities of Sumter, Orangeburg and Newberry, South Carolina) transmit on channel 8 and have served their communities for more than ten years. These translators would be required to cease operations once WIS-TV begins transmitting on DTV channel 8.

Thus, contrary to the goal of replicating NTSC coverage, the net effect of the proposals for the Columbia market will significantly decrease the service area of WLTX. This situation demands immediate attention and correction by the Commission.[9]

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8 Id. at 4.

9 Because of the serious attenuation problems associated with high UHF frequencies, the use of channels 60-69 is probably unworkable in markets with average or above average foliage.

CONCLUSION

Lewis submits that the Commission's DTV allotment and assignment policies should be structured to correct historical competitive imbalances in television markets, at least in those markets that have been dominated by a single VHF station. But even if the Commission adheres to its current proposal to assign DTV channels merely to replicate existing NTSC coverages, this objective is lost in the Columbia, South Carolina market. Accordingly, the Commission must address its channel assignments in Columbia and correct the deficiencies that will exist in the actual operating environment.

Respectfully submitted,

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EXHIBIT E
ENGINEERING STATEMENT
COMMENTS RE: DOCKET NO. 87-268
SIXTH FURTHER NOTICE OF PROPOSED RULE MAKING

INTRODUCTION

This statement was prepared on behalf of Lewis Broadcasting Corporation, licensee of television broadcast station WLTX Columbia, South Carolina. It provides comments concerning certain technical issues as they apply to the Commission's proposed DTV allotments for Columbia, South Carolina, as listed in Appendix B of the Sixth Further Notice of Proposed Rule Making in Docket 87-268.

PROPOSED ALLOTMENT

There are five licensed television broadcast stations assigned to Columbia, South Carolina. The following tabulation lists the licensed NTSC facilities of the five stations and the DTV facilities proposed for each station in the DTV Table of allotments in Appendix B of the Sixth Further Notice.

	NTSC			DTV		
CALL	CH.	ERP	HAAT	CH.	ERP	HAAT
WIS-TV	10	316KW	472M	8	7.6KW	472M
WOLO	25	3550KW	253M	23	229KW	253M
WRLK	35	617KW	314M	34	50KW	314M
WACH	57	5000KW	193M	48	285KW	193M
WLTX	19	5000KW	533M	50	413KW	533M

It is understood that the ERP's and HAAT's for the DTV operations will theoretically replicate the interference-free service areas of the NTSC operations. It is also understood that the propagation and attenuation characteristics were considered to be uniform throughout the UHF band that ranges in frequency from approximately 470 mHz to 800 mHz.

WLTX has been in contact with MSTV who, in conjunction with the Broadcasters Caucus, has proposed in an alternate allocation

table that WLTX be assigned to Channel 66 for digital operation with ERP of 581 kW at 532 meters AAT.

It is also understood that both the FCC and the Broadcasters Caucus computer models were designed to replicate the current NTSC service areas. It is our understanding that the computer models do not consider the effects of forestation and the resulting attenuation of UHF signals as they vary with frequency.

FOREST GROWTH AND THE EFFECT UPON THE POTENTIAL SERVICE AREA

The state of South Carolina is one of the more densely forested areas in the United States, with the majority of the forestation consisting of relatively tall pine trees. Attached as Figure 1 is a tabulation by county listing the results of an analysis by the U.S. Forest Service, Department of Agriculture to determine the amount of forest land compared to the total land area for the state of South Carolina. The predicted Grade B service contour of WLTX penetrates 22 counties in the state of South Carolina. The average percentage of forest land within the 22 counties is 70%. Therefore, approximately 70% of the area receiving Grade B service from WLTX is covered by forestation.

It is a well documented fact that the propagation of radio waves at UHF frequencies is significantly affected by terrain and dense foliage cover. The TASO work and reports, the Proceedings of the Institute of Radio Engineers, the files of the FCC and other sources contain published data on this subject. All of these studies essentially reach the same conclusion: The attenuating effect of terrain and dense foliage is much more severe on UHF frequencies than on VHF frequencies and the degree of attenuation varies with frequency. One example of a technical study reflecting the differences is found in the TASO Report, the work of A.H. LaGrove. In part of LaGrove's conclusion he states: "Vegetation affects the received television signal in two principal ways, the effective terminal heights are reduced because the wave is

reflected off the vegetation instead of the ground and the signal is attenuated on passing through the vegetation. Both effects vary with frequency and density of vegetation".

Another study on this subject, the effect of trees on the propagation of UHF signals is found in Attachment B in the June, 1960, TASO Supplementary Report "Engineering Aspects of Television Allocations - II". A survey on WBOC-TV, Channel 16 Salisbury, Maryland showed a definite relationship between the attenuation of UHF signals and the degree of forestation. The results of the study showed that the average signal suppression below the predicted smooth-earth value varied from 20 dB for 20 percent forest cover to approximately 30 dB for 60 percent cover.

Another example of the effects of forestation on UHF signals is extracted from the comments of Kenneth Bullington taken from the IEEE transactions, Vol. VT-26 No. 4, pp 295-308 November, 1977. Bullington states in Paragraph IX, Effects of Buildings and Trees:

> When an antenna is surrounded by moderately thick trees and below tree-top level, the average loss at 30 MHz resulting from the trees is usually 2 or 3 dB for vertical polarization and is negligible with horizontal polarization. However, large and rapid variations in the received field intensity may exist within a small area, resulting from the standing-wave pattern set up by reflections from trees located at a distance of several wavelengths for the antenna. Consequently, several nearby locations should be investigated for best results. At 100 MHz the average loss from surrounding trees may be 5 to 10 dB for vertical polarization and 2 or 3 db for horizontal polarization. The tree losses continue to increase as the frequency increases, and above 300 to 500 MHz they tend to be independent of the type of polarization. Above 1000 MHz trees that are thick enough to block vision are roughly equivalent to a solid obstruction of the same overall size.

All of the studies and examples described above are clear indications that the attenuation of UHF signals varies with the nature of the area and with the operating frequency.

As previously stated, WLTX operates on Channel 19 (500-506 MHz). The DTV plan contained in the Sixth Further Notice suggests that WLTX be assigned to Channel 50 (686-692 MHz) for digital operation and the alternate proposal by the Broadcasters Caucus suggests that WLTX be assigned Channel 66 (782-788 MHz) for digital operation. The proposed assignment of Channel 50 and/or 66 for WLTX are of great concern due to the significant difference in operating frequency and to the nature of the WLTX service area. The additional attenuation of the signal at the higher frequencies was not taken into account in the proposed DTV plans by the FCC or the Broadcasters Caucus. This additional attenuation at the higher frequencies (channels 50 or 66) will severely restrict the stations ability to provide usable signals throughout the area now served by WLTX.

As shown in the tabulation on Page 1 of this statement the Commission's DTV plan proposes essentially no change in operating channel for four of the five Columbia stations but suggests a drastic change for WLTX from Channel 19 to Channel 50. We do not know what priorities were considered in the Commission's approach to the DTV allocation scheme but we strongly urge that the proposed allotment of channel 50 for WLTX be reconsidered by the Commission in order to rectify the gross inequity that exists between the DTV proposal for WLTX in comparison to the other television stations in the Columbia market.

TRANSLATOR OPERATIONS

WLTX owns and operates television translator stations in Sumter, Orangeburg and Newberry, South Carolina. All three translators operate on Television Channel 8. The Commission's DTV plan proposes a full service DTV operation on Channel 8 for WIS-TV whose NTSC operation is currently on Channel 10 in Columbia.

If the Commission's DTV plan is implemented as proposed WLTX will not only have an inferior signal in the Columbia market with

the proposed digital facility but will also be required to cease operation on Channel 8 in Sumter, Orangeburg and Newberry.

Respectfully submitted,
LOHNES AND CULVER

by 
Frederick D. Veihmeyer

November, 1996

FOREST INVENTORY AND ANALYSIS
US FOREST SERVICE
SOUTHERN RESEARCH STATION
STARKVILLE, MISSISSIPPI
HEADQUARTERS, ASHEVILLE, NC

FIGURE 1

Table 1--Area by county and land class

County	All land	Forest land				Nonforest land
		Total	Timberland	Other forest land	Reserved timberland	
	thousand acres					
South Carolina						
Abbeville	316 4	219 2	212 4	0 0	6 8	97 2
Aiken	686 8	484 7	483 1	0 0	1 5	202 1
Allendale	261 3	166 6	166 6	0 0	0 0	94 7
Anderson	459 5	204 7	204 3	0 0	0 4	254 9
Bamberg	251 7	165 9	165 5	0 0	0 4	85 8
Barnwell	351 0	245 7	245 4	0 0	0 3	105 4
Beaufort	375 7	132 9	128 3	0 0	4 5	242 8
Berkeley	703 7	552 9	548 1	0 0	4 8	150 8
Calhoun	243 4	153 6	153 6	0 0	0 0	89 8
Charleston	587 1	285 7	270 4	0 0	15 3	301 4
Cherokee	251 3	152 2	150 4	0 0	1 9	99 1
Chester	371 6	291 0	290 5	0 0	0 5	80 6
Chesterfield	511 2	369 4	361 9	0 0	7 5	141 8
Clarendon	388 6	222 7	221 8	0 0	0 8	166 0
Colleton	676 1	459 0	457 1	0 0	1 9	217 2
Darlington	359 7	191 8	188 9	0 0	3 0	167 9
Dillon	259 1	145 5	144 5	0 0	1 1	113 6
Dorchester	367 9	258 5	257 5	0 0	1 1	109 3
Edgefield	321 2	244 8	244 8	0 0	0 0	76 4
Fairfield	439 4	383 3	383 1	0 0	0 2	56 1
Florence	511 5	294 1	293 4	0 0	0 7	217 4
Georgetown	521 5	381 7	379 2	0 0	2 5	139 8
Greenville	506 9	280 1	247 2	0 0	32 9	226 9
Greenwood	291 5	202 7	201 4	0 0	1 3	88 9
Hampton	358 4	254 3	254 1	0 0	0 1	104 1
Horry	725 6	460 2	449 0	0 0	11 2	265 4
Jasper	418 8	311 8	299 6	0 0	12 2	106 9
Kershaw	464 8	376 5	375 9	0 0	0 6	88 3
Lancaster	351 4	264 7	263 0	0 0	1 7	86 7
Laurens	456 4	313 0	312 8	0 0	0 2	143 4
Lee	262 6	138 4	135 9	0 0	2 6	124 2
Lexington	448 5	255 5	255 4	0 0	0 0	193 0
Marion	313 0	219 6	217 5	0 0	2 0	93 5
Marlboro	307 0	184 8	184 7	0 0	0 1	122 3
Mccormick	230 1	203 4	200 0	0 0	3 4	26 7
Newberry	403 7	289 6	289 0	0 0	0 7	114 1
Oconee	400 1	292 5	274 7	0 0	17 8	107 6
Orangeburg	707 8	402 2	399 7	0 0	2 5	305 6
Pickens	318 0	219 6	212 6	0 0	7 0	98 4
Richland	484 2	323 8	302 5	0 0	21 3	160 4
Saluda	288 9	189 8	189 8	0 0	0 0	99 1
Spartanburg	519 0	269 7	262 8	0 0	7 0	249 3
Sumter	425 9	237 8	235 4	0 0	2 3	188 1
Union	329 1	267 9	267 7	0 0	0 1	61 2
Williamsburg	597 8	409 3	409 3	0 0	0 0	188 4
York	436 8	272 6	264 0	0 0	8 5	164 3
All counties	19262 4	12645 6	12454 9	0 0	190 6	6616 8